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Copy 9 of 9

1 November 1968

MEMORANDUM FOR THE RECORD

SUBJECT: U-2R Lox System Meeting, 29 October 1968

REFERENCE: Memorandum for the Record, IDEA-0774-68 dtd 9 Oct 68

1. A final meeting on LOX system problems was held at Detachment G on 29 October 1968 to discuss results of tests, evaluations, and procedural changes instituted as a result of meetings held on 30 September and 3 October 1968, and to finalize all procedures for incorporation into appropriate U-2R manuals. Attendees included the following:

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[redacted]

The specific subjects discussed and results were as follows:

A. High Pressures:

(1) LAC Flight Test had attempted to induce LOX saturation problems in Aircraft 051 by only servicing their systems when the converter quantity reached 3 liters or less. While takeoff oxygen pressures were above normal (I.E., above 100 psi), in-flight use brought the pressures down without any problems being encountered. In the interval since the previous LOX meetings (i.e., 30 Sept. - 29 Oct.), Aircraft 051 had experienced only one LOX problem, which was a quantity loss after engine start but prior to takeoff. In this case the LOX system had been serviced 6 hours prior and the loss could therefore not be related to LOX saturation. LAC felt this one problem was a sticking relief or check valve. 5 flights following this were without incidents or problems.

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(2) One Detachment aircraft (057) had a single high pressure incident in the interval between meetings. In this case the pressure in System II climbed to 120 psi 4 minutes after pilot insertion/connection to ship's oxygen system. Pressure could not be brought down by breathing off the system and oxygen venting overboard was present, so the flight was aborted. LAC and ARO felt this was probably caused by the check valve sticking in the open position.

(3) ARO Corporation also investigated high pressure problems at their facility, and found that leaving a system in buildup presented no problems. However, a sticking check valve was found to cause excess venting. Filters were inserted ahead of the check valves and no further problems were then encountered. These tests and other ARO conducted tests are summarized in Attachment #1.

B. Low Pressures: In the interval between meetings, one Detachment aircraft (052) encountered low pressure indications during flight on three separate occasions. This aircraft had System I in vent and System II in build-up between flights. The three low pressure indications were all in System II. After two in-flight low pressure indications the check valve in System II was replaced. The next flight following this change still encountered low pressure warning lights, so the converter was replaced following the flight. No further problems were encountered.

C. Servicing: The period for servicing prior to flight of 1 hour minimum, 24 hours maximum, as agreed to at the previous LOX meeting was found to work well from a maintenance point of view. Filling of the LOX systems was averaging between 14 and 16 hours prior to flight according to [redacted] Filling pressure is to be between 35 and 45 psi on the LOX servicing cart. For emergency or contingency planning, LAC plans to include in their manual some provisional statements regarding extending the maximum period before flight that the LOX systems must be filled, providing sufficient quantity remains in the converters. Such a statement would cover a situation such as landing at a "strange" field without LOX servicing capability. The system would be left in buildup until the aircraft departed. LOX quantity would be critical but the maximum allowable period between filling and flight would be extended for such a situation.

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D. Purging: Hot oxygen purging is now the only acceptable method. LAC has prepared instructions for the U-2R-2-6 manual, a preliminary copy of which is included here as Attachment #2.

E. Venting: While ARO, Det. G and Headquarters representatives find no objection to leaving a LOX system in vent, LAC still feels, but cannot prove, that this may cause LOX contamination. All systems will therefore remain in buildup between fillings.

F. System Changes: A service bulletin and kits are to be released on/about 8 November 1968 to accomplish plumbing changes previously agreed to, i.e., separation of relief valves overboard vent from vent valves overboard vent. ARO proposed that one detachment aircraft be used to test check valves with filters. Hardware was left with [redacted] and a Headquarters message is to be sent authorizing the test. 25X1

G. Technical Manuals: All technical data is being rewritten and will be incorporated into manuals as soon as possible. The only delay will be in production of a trouble shooting chart. More study is required before such a chart can be completed. Attachment #3 is a listing of technical data and manuals related to oxygen systems in general and in the U-2R in particular.

H. Oxygen System Training: In order to update all maintenance crews, pilots and life support personnel on LOX system equipment, procedures, and servicing changes, a 3-4 hour training program will be conducted at Detachment G by LAC personnel [redacted] starting 4 November 1968. Following training of all Detachment G personnel, the program will be conducted for SAC personnel at Davis Monthan AFB. The proposed training outline is presented in Attachment #4. 25X1 25X1

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